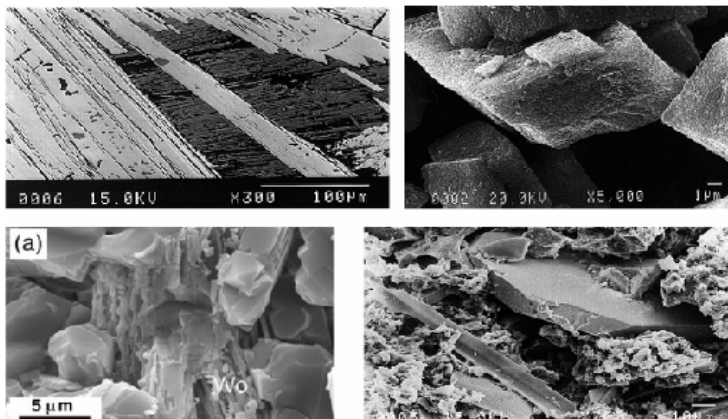


Project 2003-8: Selecting industrial minerals for using as mineral filler

Mineral fillers are inert substances used in the composition of a variety of products to improve some characteristics or to lower production costs. They may be natural or synthetic, but only natural fillers are examined in this study. The most commonly used minerals as fillers are silica, clay, calcium carbonate, barite, feldspar, borates, zeolites, wollastonite, titanium dioxide and talc.

The fear of all suppliers of filler minerals is seeing customers turn to alternative minerals produced at a lower cost. Several parameters govern the economic value of minerals, namely purity, crystallinity, crystal size, crystal shape, thermal and chemical resistance, etc. To find out which mineral may be substituted, one must know its physical and chemical properties. However, the world of industrial minerals is a very secretive one; a summary of mineral properties is not easily available.

The present project helps identify alternatives for substances commonly used as mineral fillers. Thus, an atlas of the major filler minerals was created to integrate the various crystallographic, physicochemical and other properties specific to the minerals and to propose possible substitutes. The atlas also depicts their production in the world and Quebec, a compilation of showings and deposits located in Quebec as well as price trends.



Photos taken using a scanning electron microscope: A) talc, B) calcium carbonate, C) wollastonite and D) feldspar.

Summary: Project 2003-8	
Objectives	<ul style="list-style-type: none"> To evaluate the range of fillers and to propose possible alternatives.
Results	<ul style="list-style-type: none"> Compilation of major characteristics of minerals used as fillers; Description of specific properties; Comparative tables of physicochemical properties, prices and markets ; Substitutes proposed.
Tools and innovations	<ul style="list-style-type: none"> Atlas of major fillers, listing their characteristics and suggesting possible substitutes.